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## CLAIMS

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[Claim(s)]

[Claim 1] 40 - 60 % of the weight of nature raw materials of a silica, such as 40 - 60 % of the weight of cement, silica sand, fly ash, a slag, and silica fume, and pulp fiber 2-7 weight %, other synthetic fibers, a natural fiber, the aggregate, etc. are fabricated from the raw material which carried out initial-complement combination -- having -- surface water absorption -- 50-1000g/cm<sup>2</sup> \*\* -- permanent mold frame for concrete works characterized by coming to be carried out.

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[Translation done.]

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the permanent mold frame for concrete works.

[0002]

[Description of the Prior Art] When a concrete wall was generally built, considering-as made of plywood etc. shuttering was constructed, and concrete was slushed in this shuttering, waiting and shuttering were removed for hardening, and, in the case of various makeup construction or an adiabatic wall, it was constructing with the procedure of sticking a heat insulator, on the front face. However, when based on the describing [ above ] moldworker method, shuttering was used only as a mold for only building a wall surface, but had the fault which requires time and effort for a next shuttering removal activity dramatically.

[0003] Furthermore, since the conventional shuttering uses natural materials by made of plywood, even if it carries out periodic duty, it will consider as \*\*\*\*\* soon, and consumption of natural materials is as remarkable as the amount of one construction work used being dramatically extensive conjointly, and the activity must be restricted from a viewpoint of natural environment protection. From such a viewpoint, the shuttering for concrete walls made from fiber reinforcement cement is proposed, and using it, replacing with the conventional shuttering made of plywood is proposed (for example, JP,3-293473,A).

[0004]

[Description of the Prior Art] Since the above and the permanent mold frame for concrete works have the advantage which does not use natural resources, such as timber, and will unify it as eventually as the concrete placed and it will unite with the wall of a building construction, or a column as it is With the permanent mold frame [ in / especially / while it has the advantage which the back carries out outside the limit and can omit an activity, the permanent mold frame for concrete works is rich in absorptivity, and / cement combination of a lightweight mold ] for concrete works, it is 3900 - 5000 g/cm<sup>2</sup>. Since it has absorptivity, When concrete was poured in into the shuttering assembled by the permanent mold frame for concrete works of dryness, water absorption was performed briskly, the dryout arose in the contact interface parts of shuttering and concrete, and there was a problem leading to interfacial peeling of the concrete

after hardening and shuttering.

[0005] Although \*\*\*\*\* of shuttering was performed in advance of concrete placing in the former in order to solve such a problem, there was a problem which it cannot absorb water enough since water spray can do after concrete placing only from a shuttering front-face side, but moisture evaporation prospers [ after constructing shuttering, it is hard to perform uniform water absorption, and ] in the phase of cure hardening of concrete, and a dryout produces.

[0006] But although carrying out \*\*\*\*\* etc. to the inner surface of the permanent mold frame for concrete works, and suppressing water absorption thoroughly is also considered, since adhesion with concrete and shuttering cannot do the problem of the dryout of concrete even if it can cancel when it does in this way, there is a problem the unification with concrete and shuttering becomes impossible.

[0007]

[Problem(s) to be Solved by the Invention] It is made for the purpose of this invention offering the permanent mold frame for concrete works improved by the adhesion of concrete and the permanent mold frame for concrete works while preventing the dryout of the concrete which suppressed the absorptivity of shuttering moderately in the permanent mold frame for concrete works in view of the above-mentioned trouble, and was placed.

[0008]

[Means for Solving the Problem] That is, the permanent mold frame for concrete works of this invention is 40 - 60 % of the weight of nature raw materials of a silica, such as 40 - 60 % of the weight of cement, silica sand, fly ash, a slag, and silica fume, and pulp fiber. 2-7 It is fabricated from the raw material which carried out initial-complement combination of weight %, other synthetic fibers, the natural fiber, etc., and surface water absorption is 50 - 1000 g/cm<sup>2</sup>. It is characterized by being carried out.

[0009]

[Function] As a charge of a compounding agent for fabricating the permanent mold frame for concrete works in this invention, what has many loadings of cement and the nature component of a silica is used to the conventional cement product. This is for carrying out eburnation of the mud set method, suppressing systematic water absorption and realizing moderate absorptivity.

[0010] If fewer than 40 % of the weight, the consistency of make [ in this invention / the loadings of cement / into 40 - 60 % of the weight ] of a matrix will not fully improve few [ the amount of cement ] results, but if it is because it becomes difficult to suppress absorptivity and is made [ more ] than 60 % of the weight, suitable absorptivity will no longer be acquired.

[0011] The nature raw material of a silica is made into 40 - 60 % of the weight for being based on relation with the silica reaction of said cement, producing a moderate unreacted silica, while suppressing the absorptivity of a matrix, making a hydration reaction with the concrete placed by this unreacted silica perform, and improving the adhesion of concrete and a shuttering side.

[0012] If it is because control of rough next door absorptivity becomes impossible in an organization the result which is not enough it there are few these nature raw materials of a silica than 40 % of the weight and is made [ more ] than 60 % of the weight, cement loadings will fall relatively and too moderate compact tissue will no longer be obtained. CaO in cement The ratio in [ SiO<sub>2</sub> ] a silica (C/S mole ratio) is 0.5-0.9. Considering as the range is desirable in respect of the improvement in on the strength.

[0013] pulp fiber is added for reinforcement of the permanent mold frame for concrete works, and moderate water retention grant -- if fewer than 2 % of the weight, sufficient reinforcement and the water retention effectiveness will not be acquired -- it is because homogeneity mixing with cement and the nature raw material of a silica will become difficult and also nonflammable-ization will be checked, if it is made [ more ] than 7 % of the weight. In addition, a synthetic fiber, a natural fiber, etc. are added in the above-mentioned nonflammable-izing and the range which does not have an adverse effect on absorptivity.

[0014] and surface water absorption -- 50 - 1000 g/cm<sup>2</sup> \*\* -- in order that carrying out may raise adhesion, without producing the dryout in an interface at the time of concrete placing -- it is -- 50 g/cm<sup>2</sup> if few, although it is convenient in respect of dryout prevention, since it becomes impossible for moisture absorptivity to attain adhesion with past [ the low one ] and concrete -- it is -- 1000 g/cm<sup>2</sup> It is because a dryout will arise if it is made [ many ].

[0015] After all, in the above-mentioned range, the redundant water of the placed concrete absorbs water in the permanent mold frame for concrete works, as a result of the water and the particle in concrete moving to a shuttering front face and permeating surface micropore at this time, an anchor effect arises, and adhesion improves. Furthermore, it reacts with the concrete with which the unreacted component of the permanent mold frame for concrete works was placed, and, also chemically, adhesion improves. Simultaneously, since it is stopped by the moderate amount, a dryout does not produce the absorptivity until it results in hardening of concrete. In addition, as for the above-mentioned permanent mold frame for concrete works, it is desirable to carry out polishing processing to an adhesion side with a file, and to damage a front face in order to improve the product made from adhesion with concrete.

[0016]

[Example] Next, the example of this invention is explained. It is methyl cellulose to the charge of a compounding agent shown in a table 1. 1 % of the weight was added at the outside rate, the test panel A with the thickness of 20mm, a width of face [ of 200mm ], and a die length of 1000mm was fabricated by extrusion molding, and cure hardening was carried out with the autoclave.

[0017] While measuring the coefficient of water absorption of a test panel A front face after leaving it for one week after cure hardening As shown in drawing 1 , the with a diameter height [ 50mm height of 50mm ] cylinder B made from polyethylene is stood to the front face of a test panel A. Mortar C was poured in into this and it was left for four weeks, and after that, the cylinder B made from polyethylene was sampled, as shown in drawing 2 , the test panel A was supported by Chuck D, Griddle E was pasted up on the upper bed of the column of Mortar C with the epoxy binder, and the tension test was performed. The result is as being shown in the bottom column of a table 1. In addition, although the example 2 in a table 1 carried out polishing processing with the file of #60, it shows a case to the part which pastes up Mortar C.

[0018]

[A table 1]

[0019] As a result of restricting surface water absorption moderately, in the case of the example, it became clear that the product made from adhesion with concrete was moreover also dramatically excellent, without a dryout arising, so that more clearly than the test result of a table 1.

[0020]

[Effect of the Invention] As explained above, the permanent mold frame for concrete works of this invention becomes possible [ preventing the dryout of the concrete placed effectively and

making adhesion with concrete very good with the combination of a moderate absorptivity and a moderate unreacted component, ].

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[Translation done.]

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## TECHNICAL FIELD

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[Industrial Application] This invention relates to the permanent mold frame for concrete works.

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[Translation done.]

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## \* NOTICES \*

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## PRIOR ART

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[Description of the Prior Art] When a concrete wall was generally built, considering-as made of plywood etc. shuttering was constructed, and concrete was slushed in this shuttering, waiting and shuttering were removed for hardening, and, in the case of various makeup construction or an adiabatic wall, it was constructing with the procedure of sticking a heat insulator, on the front face. However, when based on the describing [ above ] moldworker method, shuttering was used only as a mold for only building a wall surface, but had the fault which requires time and effort for a next shuttering removal activity dramatically.

[0003] Furthermore, since the conventional shuttering uses natural materials by made of plywood, even if it carries out periodic duty, it will consider as \*\*\*\*\* soon, and consumption of natural materials is as remarkable as the amount of one construction work used being dramatically extensive conjointly, and the activity must be restricted from a viewpoint of natural environment protection. From such a viewpoint, the shuttering for concrete walls made from fiber reinforcement cement is proposed, and using it, replacing with the conventional shuttering made of plywood is proposed (for example, JP,3-293473,A)..

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## EFFECT OF THE INVENTION

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[Effect of the Invention] As explained above, the permanent mold frame for concrete works of this invention becomes possible [ preventing the dryout of the concrete placed effectively and making adhesion with concrete very good with the combination of a moderate absorptivity and a moderate unreacted component, ].

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## TECHNICAL PROBLEM

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[Description of the Prior Art] Since the above and the permanent mold frame for concrete works have the advantage which does not use natural resources, such as timber, and will unify it as eventually as the concrete placed and it will unite with the wall of a building construction, or a column as it is With the permanent mold frame [ in / especially / while it has the advantage which the back carries out outside the limit and can omit an activity, the permanent mold frame for concrete works is rich in absorptivity, and / cement combination of a lightweight mold ] for concrete works, it is 3900 - 5000 g/cm<sup>2</sup>. Since it has absorptivity, When concrete was poured in into the shuttering assembled by the permanent mold frame for concrete works of dryness, water absorption was performed briskly, the dryout arose in the contact interface parts of shuttering and concrete, and there was a problem leading to interfacial peeling of the concrete after hardening and shuttering.

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## MEANS

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[Means for Solving the Problem] That is, the permanent mold frame for concrete works of this invention is 40 - 60 % of the weight of nature raw materials of a silica, such as 40 - 60 % of the weight of cement, silica sand, fly ash, a slag, and silica fume, and pulp fiber. 2-7 It is fabricated from the raw material which carried out initial-complement combination of weight %, other synthetic fibers, the natural fiber, etc., and surface water absorption is 50 - 1000 g/cm<sup>2</sup>. It is characterized by being carried out.

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## OPERATION

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[Function] As a charge of a compounding agent for fabricating the permanent mold frame for concrete works in this invention, what has many loadings of cement and the nature component of a silica is used to the conventional cement product. This is for carrying out eburnation of the mud set method, suppressing systematic water absorption and realizing moderate absorptivity.

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## EXAMPLE

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[Example] Next, the example of this invention is explained. It is methyl cellulose to the charge of a compounding agent shown in a table 1. 1 % of the weight was added at the outside rate, the test panel A with the thickness of 20mm, a width of face [ of 200mm ], and a die length of 1000mm was fabricated by extrusion molding, and cure hardening was carried out with the autoclave.

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[Translation done.]

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#### DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is a sectional view explaining the test condition of the example of this invention.

[Drawing 2] It is the explanatory view of the testing device of the example of this invention.

[Description of Notations]

A -- Test panel

B -- Cylinder made from polyethylene

C -- Mortar

D -- Chuck

E -- Griddle

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[Translation done.]

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#### DRAWINGS

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[Drawing 1]

[Drawing 2]

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[Translation done.]